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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,867	02/18/2002	Romain L. Billiet		4962

7590

08/25/2004

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MALAYSIA

EXAMINER
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LOPEZ, CARLOS N

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/082,867

**Applicant(s)**

BILLIET ET AL.

**Examiner**

Carlos Lopez

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 10-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Terminal Disclaimer***

The terminal disclaimer filed on 6/3/03 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of US Patent No. 6,733, 703 has been reviewed and is accepted. The terminal disclaimer has been recorded.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, and 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huggins et al. (5,741,842) in view of Sugiyama et al. (6,080,445) and Principles of Ceramics Processing by Reed. Perlberg et al discloses that capillary bonding tools and capillary bonding wedges are made of ceramics (see title and Col. 5 lines 19ff). Perlberg is silent disclosing the matter in which the ceramic bodies are made. However, Huggins et al. teaches a process for manufacturing ceramic sintered articles. The process disclosed by Huggins et al. includes the steps of: providing a sinterable material in fine particulate form (e.g. ceramics, see abstract) and at least one degradable organic thermoplastic material (Col. 7, lines 4ff;

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mixing a volume of the sinterable particulate material with a volume of the thermoplastic material (see Example 9-13 and table 1);

forming the mixture(see Example 9-13 and table 1);

extracting the thermoplastic material from the formed mixture; and

sintering the body ( See Col. 7, lines 4ff).

Huggins notes that his molding method of Huggins reduces the sintering time (See Col. 2, lines 37-38).

Note Table 1 of Huggins et al. discloses the amounts of sinterable particulate and thermoplastic material. Thus, it is clear that the amounts of these materials are "accurately determined" as recited in claim 1. Huggins et al. also discloses micron size particles at col. 8, lines 57-58 and thermoplastic waxes (col. 6, line 46).

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to have formed ceramic tools such as capillary bonding tools and capillary bonding wedges disclosed by Perlberg using the molding method of Huggins et al. in order to reduce the sintering time when forming Perlberg ceramics products and to thus increase the rate at which Perlberg ceramics products are produced.

Additionally, Perlberg and Huggins are silent disclosing sintering into dense end products, which is being deemed as shrinkage. Principles of Ceramics Processing teaches that shrinkage takes place during sintering (p. 583). It is thus deemed that shrinkage would take place during the sintering disclosed in Huggins et al. (5,741,842) and hence meeting the claimed limitation of sintering into dense end product.

As for claims 2, 10, and 13-18, Perlberg notes that the bore size of the capillary or bonding wedge is 1.3mils (30microns) for a 1mil fine wire passing through the bore, see Col. 4, line 5. Perlberg also notes that the borehole of the capillary or bonding wedge is less than 1.4 times the diameter of the wire passing through the bore (see abstract). Thus the claimed borehole having 10microns or less is clearly envisaged by Perlberg since it meets Perlberg requirement of being less than less than 1.4 times the diameter of the wire passing through the bore.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-7 and 10-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B-E have been cited to show the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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